INITIAL CONSERVATION TARGETS FOR THE CITY OF TUCSON HABITAT CONSERVATION PLANNING PROCESS

Species	Scientific Name	Status[1]	Marana Status[2]	Planning Area[3]	Occurrence[4]	Notes on Occurrence/Listing Status
Listed or Likely to be Listed Species Present or with Potential to Occur in Planning Areas						
Pima pineapple cactus	*Coryphantha scheeri* var. *robustispina*	E, HS, PVS	Listed	AV SL	Potential Present	Possibly may occur on parcels 24, 25, and 26. The Avra Valley lands are mostly north of the known geographic range of the species. Known to occur in the Southlands at several locations.
Cactus ferruginous pygmy-owl	*Glaucidium brasilianum cactorum*	E, WSC, PVS, MHCP	Listed	AV	Potential	Unlikely to occur. The study area is within the currently known or suspected range of the species, however there are few saguaros or large native trees and understory vegetation is poorly developed. No known records of this species within or near the Southlands area, but there is one reputed record from near the north end of the Avra Valley along the Santa Cruz River. It is possible, and has been speculated by USFWS, that owls may occasionally pass through the Avra Valley along Brawley Wash, and that this area is essential to the long-term survival and recovery of the species.
Lesser long-nosed bat	*Leptonycteris curasoae yerbabuenae*	E, WSC, PVS, MHCP	Listed	AV SL	Potential	Possibly may occur flying over some City land, but extremely unlikely to occur regularly because there are no suitable roost sites and only a few suitable forage plants present on City lands.
Yellow-billed cuckoo	*Coccyzus americanus* ssp. *occidentalis*	C, WSC, PVS, MHCP	Likely	AV	Potential	Likely to occur as a migrant on parcels 1, 2A, and 5. Cottonwood-willow vegetation along the Santa Cruz River on these parcels does not appear to be suitable for breeding. See also p. 2 under "Species listed or likely to be listed with potential to be restored to planning areas by natural processes if habitat is created or restored".
Pale Townsend's big-eared bat	*Plecotus townsendii pallescens*	SOC, PVS, MHCP	Likely	AV SL	Potential	Possibly may occur foraging over the area, but extremely unlikely to occur regularly or to roost on any of the parcels. No caves or inactive mines are known to be present. Listing Status: The population appears to have declined, particularly in California, but current status and trend is uncertain (RECON 2002).
Burrowing owl	*Athene cunicularia*	SOC, PVS, MHCP	Likely	AV SL SCR	Present Potential Present	Reported to occur on Parcel 1. Possibly may occur around other inactive agricultural fields, but none were observed during field reconnaissance. Possibly may occur in Southlands, especially in disturbed areas, but none were observed. Known to occur on City lands along the SCR. Listing Status: Species has declined in much of its range (Haug et al. 1993). Currently listed as endangered or sensitive in 14 states (U.S.) and endangered or threatened in 4 provinces (Canada). Threats include habitat loss and modification, pesticides, predators, and vehicle strikes (Haug et al. 1993, Remsen 1978). Status in Arizona is unclear (Brown 2001).
Tucson shovel-nosed snake	*Chionactis occipitalis klauberi*	PVS, MHCP	Likely	AV	Potential	Possibly may occur in undisturbed portions of the City-owned lands. Listing Status: There is a good chance that it will need to be listed as an endangered or threatened species pending genetic studies to determine whether the subspecies is appropriately identified as a distinct subspecies. The taxonomic status of these species is currently uncertain; however Rosen believes the subspecies are distinct (CH2MHill 2003).
Ground snake (valley form)	*Sonora semiannulata*	PVS, MHCP	Likely	AV	Potential	Possibly may occur. Listing Status: "I would conclude that federal listing for this population over the next two decades is probably less than 50% likely, but that it could be well justified and cannot be ruled out" (Rosen pers. comm. in CH2MHill 2003).
Species Present or with Potential to Occur in Planning Areas but with Uncertain Listing Status						
Needle-spined pineapple cactus	*Echinomastus erectocentrus erectocentrus*	SOC, SR, PVS	Not Considered	SL	Potential	May occur. The study area is within the currently known range of the species and vegetation communities within portions of the study area are similar to those where this species is known to occur. Listing Status: Much of the species known range is in Pima County. Illegal collection and urbanization are seen as the major threats; however, road development, overgrazing, and off-road vehicle use may also impact this species (RECON 2002). Population trends are unknown. No monitoring of plants or studies are being done (AGFD 2003a).
Pima Indian mallow	*Abutilon pariashii*	SOC, SR	Not Considered	SL	Potential	May occur. The study area is within the currently known range of the species and vegetation communities within portions of the study area are similar to those where this species is known to occur. Listing Status: Widespread. Surveys conducted from 1991-1994 discovered numerous new populations, significantly expanding the known range. Population appears to increase in wet years and decline in dry years (AGFD 2000a).
Great Plains narrow-mouthed toad	*Gastrophryne olivacea*	SOC	Not Considered	AV SCR	Potential	Known to occur in the Avra Valley, and possibly may occur on one or more of the City-owned parcels, especially those that have not been completely disturbed by historic agriculture. Also known to occur along the West Branch of the SCR, and possibly may occur with or without translocation at other sites along the river if restoration projects are accomplished. Listing Status: Population trends unknown (AGFD 2003b). Recent observations indicate this amphibian may be expanding its range; however, this conclusion is tentative due to the small size, secretive habits and the lack of a thorough distributional study (Enderson 2002).
Red-backed whiptail	*Cnemidophorus burti xanthonotus*	SOC, PVS	Not Considered	AV	Potential	Possibly may occur along extreme western edge of the AV. Listing Status: Information insufficient to determine population trends (RECON 2002). Populations are apparently stable in Arizona (AGFD 1997), although they appear to be very sensitive to the effects of drought and show decline in drought years (Rosen and Lowe 1996).
Tropical kingbird	*Tyrannus melancholicus*	SOC	Not Considered	AV	Potential	Known to occur occasionally in the general area, downstream from Parcel 1. Possibly may occur occasionally on Parcel 1. Possibly may also occur along the SCR if restoration projects are accomplished. Listing Status: Population trends unknown (AGFD 2003c).
Peregrine falcon	*Falco peregrinus anatum*	DL 1999, SOC, WSC	Not Considered	SCR	Potential	Optimum habitat is generally considered to be steep, sheer cliffs overlooking woodlands, riparian areas, or other habitats supporting avian prey species in abundance. In Arizona, the falcon seems to be breeding in less optimal habitat, either small broken cliffs in Ponderosa pine forest or large, sheer cliffs in very xeric areas. The presence of an open expanse is critical (AGFD 2002e). This species is known to occur at least occasionally in urban Tucson (Kingsley, pers. comm.). Listing Status: The species was delisted as federally endangered and is now considered to be recovered. Populations are being monitored, but the declines of the 1950's and 1960's have apparently been reversed and, in Arizona, are found in greater numbers (AGFD 2002e).
Greater western mastiff bat	*Eumops perotis californicus*	SOC	Not Considered	SL SCR	Potential	Occurs in lower and upper Sonoran desertscrub near cliffs, preferring the rugged, rocky canyons with abundant crevices. Insectivorous; prefers foraging over large bodies of water (AGFD 2002g). There are historic records from this species from buildings in Tucson (Kingsley, pers. comm.). Listing Status: Population trends are poorly known. Some roost sites are no longer occupied (AGFD 2002g).

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Species Present or with Potential to Occur in Planning Areas but with Uncertain Listing Status						
Cave myotis	*Myotis velifer*	SOC	Not Considered	AV SL SCR	Potential	Occurs in desertscrub or creosote, brittlebush, paloverde, and cacti. Roosts in caves, tunnels, mineshafts, under bridges, and sometimes in buildings within a few miles of water. Known winter roosts are wet mine tunnels above 6,000 ft. (AGFD 2001i). Listing Status: Found in maternity colonies in Arizona that vary in size between 50 and 15,000 females. The species is vulnerable at the roost, especially maternity roosts, as they congregate in large numbers. They are threatened by habitat loss associated with urban development, recreational caving, mine closures, roost destruction, and loss of riparian foraging habitat (AGFD 2001i).
Species Present or with Potential to Occur in Planning Areas but Not Likely to be Listed						
Abert's towhee	*Pipilo aberti*	PVS, MHCP	Not Likely	AV SL SCR	Present Potential Present	Known to occur. Individuals may be found in mesquite on many parcels, and in cottonwood-willow areas on Parcel 1. Vegetation along some washes in the Southlands area is similar to that at locations where this species is known to occur. Restoration projects along the SCR are likely to improve habitat for this species. Listing Status: The species appears to be declining in many or most parts of its range, apparently in response to vanishing riparian habitat (BISON-M 2000a). This species appears to be well adapted to urban development, human influences, and anthropogenic habitat in at least some portions of its range (Kingsley, pers. comm. in RECON 2002).
Bell's vireo	*Vireo bellii*	PVS, MHCP	Not Likely	AV SL SCR	Present Potential Potential	Known to occur. Individuals may be found in mesquite on many parcels, and in cottonwood-willow areas on Parcel 1. Vegetation communities in the Southlands area are similar to those at locations where this species is known to occur. High potential along the SCR, especially if restoration projects are accomplished. Listing Status: Extreme population reductions were alleged to have occurred as a result of habitat loss, but there are no known quantitative data to support this contention (RECON 2002).
Tumamoc globeberry	*Tumamoca macdougalli*	DL 1993, SR, PVS, MHCP	Not Likely	AV SL	Potential	Known to occur in the general area. This plant has been found on Avra Valley lands close to those owned by the City of Tucson, and is likely to occur on those City-owned lands with natural open space. The Southlands area is within the currently known range of the species and vegetation communities within portions of the study area are similar to those where this species is known to occur. Restoration potential is high for transplants, but it is unknown whether the plant would show up without human intervention in improved habitat in a reasonable time frame. Listing Status: Habitat changes that have occurred in Mexico may lead the USFWS to relist the species as threatened or endangered (Mima Falk, pers. comm.).
Desert tortoise	*Gopherus agassizii*	SOC, WSC, MHCP	Not Likely	AV SL	Potential	Likely to occur on some of the City-owned properties; however, none of the properties appear to have habitat that would be considered high quality for the Sonoran Desert population of Desert Tortoise. This population is generally associated with rocky slopes and hills, and there are none on the parcels. May occur regularly, but probably not in large numbers. The Southlands area is within the currently known range of the species and vegetation communities and landscape features within portions of the study area are similar to those at locations where this species is known to occur; however, the generally poor condition of the study area is not similar to that in places where tortoises are relatively abundant. Listing Status: Some evidence that upper respiratory disease is becoming an issue, but it is at low incidence (Averill-Murray, pers. comm. in CH2MHill 2003). Some populations have crashed (Schwalbe, pers. comm. and Rorabough, pers. comm. in CH2MHill 2003); however there is no evidence of widespread decline (Schwalbe, pers. comm. and Averill-Murray, pers. comm. in CH2MHill 2003).
Giant spotted whiptail	*Cnemidophorus burti stictogrammus*	SOC, PVS, MHCP	Not Likely	AV SL SCR	Potential	Possibly may occur, particularly along Brawley Wash. Unlikely to occur in the Southlands. However, ecological conditions (mesquite woodlands) in the southern portion of the study area appear to be similar to locations where this species is known to occur. Known to occur along the West Branch, and restoration potential is high along the SCR. Listing Status: The species has a limited distribution and appears to have been extirpated from portions of its former range, however AGFD believes that existing populations are stable (RECON 2002).
Desert box turtle	*Terrapene ornata luteola*	PVS, MHCP	Not Likely	AV SL	Potential	Possibly may occur, but conditions are far from ideal for this species, which is a plains grassland animal. Restoration potential is possible in AV, SCR, and SL. Listing Status: The subspecies is apparently secure in New Mexico, but is uncommon or restricted in Arizona (BISON-Mb 2000), and local populations may have declined (Rosen et al. 1996).
Rufous-winged sparrow	*Aimophila carpalis*	PVS, MHCP	Not Likely	AV SL	Potential	Likely to occur. Vegetation resembling that in which this species is often found is present within the study area. However, none were detected during field reconnaissance. Listing Status: Population status and trend are uncertain. Recent information suggests that it is fairly common and widespread within its range (RECON 2002).
Swainson's hawk	*Buteo swainsoni*	SOC, WSC, PVS, MHCP	Not Likely	AV SL	Potential	Likely to occur. Nesting Swainson's Hawks have been reported in the general area, and conditions on most of the City-owned lands resemble known foraging areas of this species. Listing Status:This species has declined in parts of its range but expanded in others. Population size remains relatively large (RECON 2002).
Mexican long-tongued bat	*Choeronycteris mexicana*	SOC, WSC, PVS, MHCP	Not Likely	AV	Potential	Possibly may occur flying over some City lands, but extremely unlikely to occur regularly because there are no suitable roost sites and few, if any, food plants present. Listing Status: Biology and population status poorly understood. Some authors believe population is declining but others do not believe there is evidence of a decline. The Western Bat Working Group considers this species to be imperiled or at high risk of imperilment (RECON 2002).
Western yellow bat	*Lasiurus xanthinus (=ega)*	WSC, PVS, MHCP	Not Likely	AV	Potential	Unlikely to occur on any of the parcels, except possibly on Parcel 1 where there are some riparian deciduous trees. Some restoration potential along the SCR. Listing Status: Limited information suggests that this species' range and abundance are increasing (RECON 2002).
Western red bat	*Lasiurus blossevillii*	WSC, PVS, MHCP	Not Likely	AV	Potential	Unlikely to occur on any of the parcels, except possibly on Parcel 1 where there are some riparian deciduous trees. Some restoration potential along the SCR. Listing Status: The Western Bat Working Group considers this species imperiled or at a high risk for imperilment. However, the AGFD believes that population trends are stable (RECON 2002).
California leaf-nosed bat	*Macrotus californicus*	SOC, WSC, PVS, MHCP	Not Likely	AV SL	Potential	Possibly may occur foraging over the area, but extremely unlikely to occur regularly or to roost on any of the parcels. No suitable roosts are present. Listing Status: Population status and trend are uncertain (RECON 2002).
Mountain plover	*Charadrius montanus*	MHCP	Not Likely	AV	Potential	Species occurs occasionally in agricultural fields in winter (Howe, pers. comm. and Kertell, pers. comm. in CH2MHill 2003). Extremely unlikely to occur in the Southlands. Listing Status: In 2003, USFWS withdrew listing proposal.

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Listed or Likely to be Listed Species with Potential to Recolonize Planning Areas by Natural Processes if Habitat is Created or Restored						
Southwestern willow flycatcher	*Empidonax traillii extimus*	E, WSC, PVS, MHCP	Listed	SCR and created wetlands	Restoration potential	Unlikely to occur. No City land has vegetation conditions or water that would be considered habitat for this species. Parcels 1, 2A, and 5 have some potential for developing suitable habitat, but do not appear to be suitable at this time. Some restoration potential in riparian restoration or creation project areas. Natural Reestablishment Potential: This species is thought to occur in Pima County as a migrant. There is only 1 HDMS record currently; although, in 2001, one nesting pair was found at Gardner Canyon and another two individuals were documented at Bingham Cienega Nature Preserve in 2000 (RECON 2002). Additionally, there are records of this species, including documented nesting, in Empire Cienega Natural Riparian Conservation Area in 2002 and 2003 (Kingsley, pers. comm.).
Yellow-billed cuckoo	*Coccyzus americanus* ssp. *occidentalis*	C, WSC, PVS, MHCP	Likely	SCR and created wetlands	Restoration potential	Restoration potential if suitable riparian woodland habitat is created. Natural Reestablishment Potential: This species has been reported along the Santa Cruz River (CH2MHill 2003), including in reports in Green Valley, Sahuarita, and in nearby Saguaro National Park East and West; although it is considered extirpated from most of the river in Pima County (RECON 2002). The nearest breeding birds were documented at Picacho State Recreation Area (RECON 2002). Additionally, individuals have been reported from the Santa Cruz River and Tanque Verde Creek in 2002 and from Cienega Creek in 2004 (Kingsley, pers. comm.).
Yuma clapper rail	*Rallus longirostris yumanensis*	T, WSC, MHCP	Listed	SCR and created wetlands	Restoration potential	Extremely unlikely to occur. No natural permanent aquatic habitat is present in the project area or on any of the City-owned parcels. Natural Reestablishment Potential: The species has been reported at Picacho Reservoir (CH2MHill 2003); no breeding areas have been documented in Pima or Pinal counties (AGFD 2001b).
Black-bellied whistling duck	*Dendrocygna autumnalis*	WSC	Not Considered	SCR and created wetlands	Restoration potential	Found along river, marshes, ponds, stock tanks, and swamps. Uses natural cavities in live or dead trees for nesting; prefers thickets, such as willow, mesquite, or cactus. Sites are usually near freshwater ponds or lakes. Uses wetland areas with dense stands of emergent vegetation for feeding. May use agricultural fields for feeding (AGFD 2002d). Natural Reestablishment Potential: There have been reports of this species at Patagonia Lake (1996-2003), Sweetwater Wetlands (1998, 2001), Ina Road bridge (1999, 2002-2003), Agua Caliente Park (2000), St. David (1997), Amado sewage ponds (1997), Arivaca Cienega (1999-2003), Tumacacori (2003), and Sonoita Creek Sanctuary (1996) (Birdingonthe.Net 2004). Listing Status: This species was rare in Arizona before 1949 but has since become a rather common nesting bird (ASDM 2004).
Northern gray hawk	*Asturina nitida maxima*	SOC, WSC	Not Considered	SCR and created wetlands	Restoration potential	Occurs in riparian woodlands with large trees (e.g., cottonwoods), usually near mesquite forests (AGFD 2000c). It is not uncommon to find them on agricultural fields (Glinski, 1998; Stiles and Skutch, 1989). Natural Reestablishment Potential: This species is known to nest at Cienega Creek County Park (Kingsley, pers. comm.). Listing Status: population trend is apparently stable (AGFD 2000c)
Listed or Likely to be Listed Species with Potential to be Restored to Planning Areas if Habitat is Created or Restored and Species is Introduced						
Huachuca water umbel	*Lilaeopsis schaffneriana recurva*	E, HS, PVS, MHCP	Listed	SCR and created wetlands	Restoration potential	Highly unlikely to occur under present conditions. This species is no longer known from the Santa Cruz River, from which it was extirpated. Possibly could be re-introduced on parcels 1, 2A, and 5 in AV, or in created wetlands or restored river. Natural Reestablishment Potential: Currently, not known to occur in Tucson portion of Santa Cruz River. This species is found in higher headwater locations such as Sonoita Creek and the San Raphael Valley portion of the Santa Cruz River (CH2MHill 2003).
Desert pupfish	*Cyprinodon macularius macularius*	E, WSC, PVS, MHCP	Listed	SCR and created wetlands	Restoration potential	Extremely unlikely to occur. No natural permanent aquatic habitat is present in the project area or on any of the City-owned parcels. High restoration potential in created wetlands or restored river if species is reintroduced. Natural Reestablishment Potential: The only known population in Pima County is a captive population at the International Wildlife Museum (RECON 2002).
Gila topminnow	*Poeciliopsis occidentalis*	E, WSC, PVS, MHCP	Listed	SCR and created wetlands	Restoration potential	Extremely unlikely to occur. No natural permanent aquatic habitat is present in the project area or on any of the City-owned parcels. High restoration potential in created wetlands or restored river if species is reintroduced. Natural Reestablishment Potential: The only reasonably secure population in Pima County is within the Las Cienegas National Conservation Area. The species is also currently known to occur at Cienega Creek Preserve and the Santa Cruz River at Tumacacori (Kingsley, pers. comm.). Another 4 locations (2 transplanted populations in the Rincon Mountains and 2 populations in the Santa Catalinas) have since been extirpated due to loss of water in their habitats (RECON 2002).
Loach minnow	*Tiaroga cobitis*	T, WSC	Listed	SCR and created wetlands	Restoration potential	Extremely unlikely to occur. No natural permanent aquatic habitat is present in the project area or on any of the City-owned parcels. Some restoration potential in created wetlands or restored river if species is reintroduced. Natural Reestablishment Potential: This species currently does not occur in Pima County; the nearest known population is in Arivaipa Creek in Pinal and Graham counties (AGFD 2002a).
Spikedace	*Meda fulgida*	T, WSC	Listed	SCR and created wetlands	Restoration potential	Extremely unlikely to occur. No natural permanent aquatic habitat is present in the project area or on any of the City-owned parcels. Some restoration potential in created wetlands or restored river if species is reintroduced. Natural Reestablishment Potential: This species does not occur in Pima County; the nearest known population is a 24-mile stretch of Arivaipa Creek in Pinal and Graham counties (AGFD 2002b).
Chiricahua leopard frog	*Rana chiricahuensis*	T, WSC, PVS, MHCP	Listed	SCR and created wetlands	Restoration potential	Extremely unlikely to occur. No natural permanent aquatic habitat is present in the project area or on any of the City-owned parcels. There are bullfrogs present on the parcels that receive effluent water via the Santa Cruz River. The presence of bullfrogs probably precludes survival of native frogs. Natural Reestablishment Potential: There are currently only 6 known sites for this species in Pima County (RECON 2002), including in Cienega Creek at Empire Cienega Natural Riparian Conservation Area (Kingsley, pers. comm.). Historically, this species was also found in the Santa Rita Mountains (Kingsley, pers. comm.).
Gila chub	*Gila intermedia*	PE, WSC, PVS, MHCP	Likely	SCR and created wetlands	Restoration potential	Extremely unlikely to occur. No natural permanent aquatic habitat is present in the project area or on any of the City-owned parcels. High restoration potential in created wetlands or restored river if species is reintroduced. Natural Reestablishment Potential: The only currently known locations of this species in the Santa Cruz River basin are from Cienega Creek, Sabino Canyon, and Sheehy Spring (AGFD 2002c).

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Listed or Likely to be Listed Species with Potential to be Restored to Planning Areas if Habitat is Created or Restored and Species is Introduced						
Sonora sucker	*Catostomus insignis*	SOC, PVS, MHCP	Likely	SCR and created wetlands	Restoration potential	Extremely unlikely to occur. No natural permanent aquatic habitat is present in the project area or on any of the City-owned parcels. High restoration potential in created wetlands or restored river if species is reintroduced. Natural Reestablishment Potential: This species is currently found in the Santa Cruz River only in headwaters at the Cienega Creek basin (CH2MHill 2003). There are no known records in Pima County (RECON 2002). Listing Status: Populations of this species are declining, although its distribution is widespread. Populations are stable in some portions of the species' range (RECON 2002).
Lowland leopard frog	*Rana yavapaiensis*	SOC, WSC, PVS, MHCP	Likely	SCR and created wetlands	Restoration potential	Extremely unlikely to occur. No natural permanent aquatic habitat is present in the project area or on any of the City-owned parcels. There are bullfrogs present on the parcels that receive effluent water via the Santa Cruz River. The presence of bullfrogs probably precludes survival of native frogs. High restoration potential in created wetlands or restored river if species is reintroduced. Natural Reestablishment Potential: This species is thought to occur at 10 to 20 sites in Pima County and is present in Cienega Creek County Park, the lower San Pedro River, Montrose Canyon, and in and around the Saguaro National Park East Unit (5 different canyons in the Rincon Mountains) (RECON 2002). Listing Status: Species has been extirpated from southeast California and is believed to be extirpated from southwestern Arizona and New Mexico (AGFD 2001c). Rosen (pers. comm.) believes the species is common and widespread (in CH2MHill 2003).
Mexican garter snake	*Thamnophis eques megalops*	SOC, WSC, PVS, MHCP	Likely	SCR and created wetlands	Restoration potential	Extremely unlikely to occur. No natural permanent aquatic habitat is present in the project area or on any of the City-owned parcels. Some restoration potential in created wetlands or restored river if species is reintroduced and fish and frogs are restored. Natural Reestablishment Potential: This subspecies has been extirpated from the Santa Cruz and Rillito Rivers. Key populations in southeastern Pima County are found in Cienega and Arivaca Creeks (RECON 2002). Listing Status: This species is very rare with a limited distribution. Populations have decreased from historic levels and continue to decline (RECON 2002).
Species with Uncertain Listing Status, with Potential to be Restored to Planning Areas if Habitat is Restored or Created and Species is Introduced						
Merriam's mouse	*Peromyscus merriami*	PVS	Not Considered	AV SL SCR	Restoration potential	Unlikely to occur. Well-developed mesquite bosque habitat does not occur in this area. However, current distribution is poorly known, and the general area has not been surveyed for this species in many years. Restoration potential may be possible if mesquite bosques are restored or created. Natural Reestablishment Potential: These species has been extirpated from the Santa Cruz River area. No individuals have been recorded in Pima County for more than 30 years (RECON 2002). The nearest known recent location for this species is more than 100 miles away from the planning area (Kingsley, pers. comm.). Listing Status: This species has experienced severe declines due to loss of mesquite habitat (Hoffmeister 1986) and has been extirpated from much, if not all, of its former range in Pima County (RECON 2002).
Species Not Likely to be Listed, with Potential to be Restored to Planning Areas if Habitat is Restored or Created and Species is Introduced						
Longfin dace	*Agosia chrysogaster*	SOC, PVS, MHCP	Not Likely	SCR and created wetlands	Restoration potential	Extremely unlikely to occur. No natural permanent aquatic habitat is present in the project area or on any of the City-owned parcels. High restoration potential in created wetlands or restored river if species is translocated. Natural Reestablishment Potential: Historically found in Bill Williams and Gila River drainages. Currently, the only HDMS records of this species in Pima County are from various portions of Cienega Creek and one location in Buehman Canyon (AGFD 2000b). The species is abundant at Cienega Creek County Park (Kingsley, pers. comm.). Listing Status: Some authors report indications of a population decline, others have suggested that is stable in some locations (RECON 2002).
Desert sucker	*Catostomus clarkii*	SOC, PVS	Not Likely	SCR and created wetlands	Restoration potential	Extremely unlikely to occur. No natural permanent aquatic habitat is present in the project area or on any of the City-owned parcels. High restoration potential in created wetlands or restored river. Natural Reestablishment Potential: Historically, this species was found in Redfield Canyon (2 locations) and several places along the Santa Cruz River near Tucson. The species is currently known to occur at a single site along the Santa Cruz River drainage, Sonoita Creek, the San Pedro River, Redfield Canyon, and Arivaipa Creek (RECON 2002). Listing Status: Status of this species is unknown, however, populations have declined in some areas and the species is thought to be restricted to only a few locations in southeastern Pima County (RECON 2002).
American bittern	*Ardea lentiginosa*	MHCP	Not Likely	SCR and created wetlands	Restoration potential	Marshlands and very wet meadows; rarely seen away from dense reeds, rushes, cordgrass, cattails, and other emergent vegetation (AGFD 2001a). Natural Reestablishment Potential: This species has been reported at Picacho reservoir (CH2MHill 2003). Listing Status: Population undergoing substantial decline due to loss and degradation of habitat (AGFD 2001a).
Species Absent from Planning Areas or Occurring only as an Accidental within the Planning Areas and Unsuitable for Restoration						
Kearney's blue star	*Amsonia kearneyana*	E, HS	Listed	N/A	Absent	Extremely unlikely to occur. The Avra Valley lands are approximately 1,000 ft below the normal elevation range for this species. The Southlands area is approximately 800 ft below the normal elevation range for this species, and the nearest known location of the species is approximately 50 miles away.
Nichol's Turk's head cactus	*Echinocactus horizonthalonius var. nicholii*	E, HS, PVS	Listed	N/A	Absent	Extremely unlikely to occur. The Avra Valley lands do not contain the limestone rock substrates required by this species. The Southlands area does not contain the limestone rock substrates required by this species, and the nearest known location of the species is approximately 45 miles away.
Bald eagle	*Haliaeetus leucocephalus*	T, WSC	Listed	N/A	Accidental	Extremely unlikely to occur. There are no large bodies of water with large fish on the Avra Valley lands. However, wandering individuals may occasionally be temporarily attracted to the Clearwater project recharge basins. Might move into restored SCR area or created wetlands if large fish are established.
Brown pelican	*Pelecanus occidentalis*	E	Listed	N/A	Accidental	Extremely unlikely to occur. There are no large bodies of water with large fish on the Avra Valley lands. However, wandering individuals may occasionally be temporarily attracted to the Clearwater project recharge basins. Might occur occasionally in restored SCR area or created wetlands if fish become established.
Masked bobwhite	*Colinus virginianus ridgewayi*	E, WSC	Listed	N/A	Absent	Extremely unlikely to occur. The southernmost City-owned parcel is approximately 18 miles from the Buenos Aires National Wildlife Refuge. There is no evidence that the re-introduced population is expanding. There is no dense, tall desert grassland vegetation on any City-owned parcel.
Mexican spotted owl	*Strix occidentalis lucida*	T, WSC	Listed	N/A	Accidental	Extremely unlikely to occur. The City-owned parcels are several thousand ft below the normal elevation range of this species, and vegetation conditions do not resemble those in which this species has been found.

Species	Scientific Name	Status[1]	Marana Status[2]	Planning Area[3]	Occurrence[4]	Notes on Occurrence/Listing Status
Species Absent from Planning Areas or Occurring only as an Accidental within the Planning Areas and Unsuitable for Restoration						
Mexican gray wolf	*Canis lupus baileyi*	E, WSC	Listed	N/A	Absent	Extremely unlikely to occur. This species was reintroduced to an area over 150 miles from the City of Tucson lands.
Sonoran pronghorn	*Antilocapra americana sonoriensis*	E, WSC	Listed	N/A	Absent	Extremely unlikely to occur. Avra Valley is more than 100 miles from the nearest population and does not contain "extensive" desert grassland.
Jaguar	*Panthera onca*	E	Listed	N/A	Absent	Extremely unlikely to occur. Individuals are very rare and wander widely; the probability of one being present in the Avra Valley is extremely low, although it cannot be completely ruled out.
Ocelot	*Felis pardalis*	E, WSC	Listed	N/A	Absent	Extremely unlikely to occur. Although the Avra Valley contains desert scrub vegetation, cover is not "dense". Avra Valley is not within known current range.
Quitobaquito desert pupfish	*Cyprinodon eremus*	E, WSC	Listed	N/A	Absent	Extremely unlikely to occur. Currently restricted to small ponds and springs. Only occurs at Quitobaquito Springs (OPNM) and a nearby stock tank (AGFD 2001d).
Talus snails	*Sonorella* spp.	PVS[5], MHCP	N/A	N/A	Absent	Extremely unlikely to occur. None of the City-owned parcels have talus slopes or exposed rock. Talus slopes or exposed rock areas are not present on the Southlands area.
Sonoyta mud turtle	*Kinosternon sonoriense longfemorale*	C	N/A	N/A	Absent	Found only in Quitobaquito Springs (USFWS 2004).
Arizona shrew	*Sorex arizonae*	SOC, WSC, PVS, MHCP	N/A	N/A	Absent	Extremely unlikely to occur. The Avra Valley lands are several thousand ft below the elevation range of this species and vegetation communities and substrates in the Avra Valley lands are not similar to those known to support this species.
Acuña cactus	*Echinocactus erectocentius* var. *acunensis*	C, HS, PVS	N/A	N/A	Absent	Extremely unlikely to occur. The Avra Valley lands are more than 60 miles from the nearest known locations of the species. The Southlands area is more than 60 miles from the nearest known locations of the species, and elevations within the area are more than 800 ft above the known highest elevation of this species.
Gooddings onion	*Allium gooddingii*	CA, HS	N/A	N/A	Absent	Extremely unlikely to occur. The City of Tucson's Avra Valley holdings are 5,000 ft below the elevation range of this species. Vegetation communities and substrates in the Avra Valley holdings are not similar to those from which this species is known. The Southlands area is 5,000 ft below the elevation range of this species. Vegetation communities and substrates in the Southlands area are not similar to those from which this species is known to occur.
Gentry indigobush	*Dalea tentaculoides*	SOC, HS, PVS	N/A	N/A	Absent	Extremely unlikely to occur. The Avra Valley lands are more than 25 miles from the known range of the species, and do not include rocky canyon bottoms that are not grazed. The Southlands area is more than 50 miles from the known range of the species, and does not include rocky canyon bottoms that are not grazed.
Arkenstone Cave pseudoscorpion	*Albiorix anophthalmus*	PVS	N/A	N/A	Absent	Extremely unlikely to occur. The only known location of this species is approximately six miles east of the Southlands area, in a different geological formation.
Organ Pipe shovel-nosed snake	*Chionactis palarostris organica*	PVS	N/A	N/A	Absent	Extremely unlikely to occur. The Avra Valley is more than 60 miles from known occurrences. The Southlands area is more than 100 miles from known occurrences.
Allen's big-eared bat	*Idionycteris phyllotis*	SOC, PVS	N/A	N/A	Absent	Extremely unlikely to occur. This species is not known from the general area, and the area lacks any of the vegetation types in which this species has most frequently been found. There are no potentially suitable roost sites on any of the City-owned parcels.
Lowland burrowing treefrog	*Pternohyla fodiens*	WSC	N/A	N/A	Absent	Extremely unlikely to occur. Occurs in low desert mesquite grasslands of southwestern Arizona, usually associated with major washes and arroyos that help form the large mesquite bosques it seems to prefer. Nearly all of its range in Arizona is on the Tohono O'odham nation (AGFD 2003d).
Northern goshawk	*Accipiter gentilis*	SOC, WSC	N/A	N/A	Absent	Extremely unlikely to occur. Breeds in high, forested mountains and plateaus (usually above 6,000 ft. elevations). Uses coniferous, deciduous, and mixed forests (AGFD 2003e).
Crested caracara	*Caracara cheriway*	WSC	N/A	N/A	Absent	Extremely unlikely to occur. Nearly all of its range in Arizona is on the Tohono O'odham Nation (AGFD 2003f).
Fulvous whistling duck	*Dendrocygna bicolor*	SOC	N/A	N/A	Accidental	Extremely unlikely to occur. Breeding habitat includes freshwater wetlands, especially shallow impoundments, and temporarily flooded grasslands and pastures. Upland nesting occurs in pastures, haylands, and small grain fields adjacent to ricefields. Also to a lesser extent, they occur in shallow freshwater marshes with dense stands of flooded or floating emergents and open-water zones vegetated with floating aquatic plants. Decidedly rare in Arizona; occurs sporadically eastward to Phoenix and Picacho Lake (AGFD 2001e) with some historic records from Tucson (Kingsley, pers. comm.).
Northern buff-breasted flycatcher	*Empidonax fulvifrons pygmaeus*	SOC, WSC	N/A	N/A	Absent	Extremely unlikely to occur. Occurs in open stands of pine or sycamore or in areas of riparian vegetation. Occurs at elevations between 5,720 and 8,625 ft (AGFD 2003g).
Rose-throated becard	*Pachyramphus aglaiae*	WSC	N/A	N/A	Absent	Extremely unlikely to occur. Breeds in sycamore riparian habitats in extreme southcentral Arizona. In Arizona, ranges form 3,550 to 4,030 ft. elevation (AGFD 2001f).
Osprey	*Pandion haliaetus*	WSC	N/A	N/A	Absent	Extremely unlikely to occur. Nests in coniferous trees, alongside or near rivers and lakes in the White Mountains and across the Mogollon Plateau. A few occur year-round at lower elevations along the Gila and Salt Rivers, but no desert nest sites have been documented (AGFD 2002f).
Thick-billed kingbird	*Tyrannus crassirostris*	WSC	N/A	N/A	Accidental	Extremely unlikely to occur. Breeds in sycamore riparian habitat dominated by cottonwood, willow, and mesquite. Documented at Sonoita Creek, Sycamore Canyon, and Guadalupe Canyon. Since 1980, they also nest locally in cottonwood-willow gallery forests along the lower San Pedro River. A few individuals have wintered along the Colorado River near Parker and Laguna Dam (AGFD 2001g).
Sabino canyon damselfly	*Argia sabino*	SOC	N/A	N/A	Absent	Extremely unlikely to occur. Occurs primarily at Sabino Canyon. Additional populations of this species, if they exist, will most likely be discovered in high-gradient streams that are punctuated by large open, rocky perennial pools (AGFD 2001h) and that have no fish (Kingsley, pers. comm.).

Species	Scientific Name	Status[1]	Marana Status[2]	Planning Area[3]	Occurrence[4]	Notes on Occurrence/Listing Status
Species Absent from Planning Areas or Occurring only as an Accidental within the Planning Areas and Unsuitable for Restoration						
Quitobaquito tryonia	*Tryonia quitobaquitae*	SOC	N/A	N/A	Absent	Extremely unlikely to occur. Occurs only at Quitobaquito spring complex at OPNM (AGFD 2003h).
Underwood's mastiff bat	*Eumops underwoodi*	SOC	N/A	N/A	Absent	Extremely unlikely to occur. Very little is known about preferred habitat; however, in Arizona it has been found in Sonoran desert habitat. Presumed to roost primarily in rock crevices on cliff faces (AGFD 2003i) in and west of the Baboquivari Mountains (Kingsley, pers. comm.).
Occult little brown bat	*Myotis lucifugus occultus*	SOC	N/A	N/A	Absent	Extremely unlikely to occur. Most Arizona records show this species occurs from the Mogollon Rim from Alpine northwest to near Flagstaff, including Mingus Mountain, Verde Valley, Sierra Ancha Mountains, and the Pinal Mountains. It likely occurs along the lower Colorado River Valley. In summer it is usually found in ponderosa pine and oak-pine woodland near water, or in riparian forest in some desert areas. Colonies have been found in buildings and in crevices between timbers of highway bridges (Siders 1996).
Yellow-nosed cotton rat	*Sigmodon ochrognathus*	SOC	N/A	N/A	Absent	Occurs in grassy, dry, rocky slope in or near the oak woodland belt, as well as montane meadows within Ponderosa pine and Douglas fir forests. Occurs in southeastern Arizona, north and west to Santa Catalina and Santa Rita Mountains (AGFD 2003j).
Santa Cruz striped agave	*Agave parviflora* ssp. *parviflora*	SOC, HS	N/A	N/A	Absent	Extremely unlikely to occur. Occurs in middle elevations (3,560 to 5,200 feet) of mountains on open rocky or gravelly slopes and ridges and in desert and oak woodland. Occurs in vicinity of Santa Rita Mountains (AGFD 2003k).
Trelease agave	*Agave schotti* var. *treleasei*	SOC, HS	N/A	N/A	Absent	Extremely unlikely to occur. Occurs on sunny, open, gentle rocky slopes or in small drainages in high elevation desertscrub, grassland, juniper and oak woodlands between 3,440 and 5,600 feet elevation. Known only in Santa Catalinas and Ajo Mountains in Arizona (AGFD 2003l).
Saiya	*Amoreuxia gonzalezii*	SOC, HS	N/A	N/A	Absent	Extremely unlikely to occur. Occurs on rocky limestone hills, from 4,200 to 4,600 feet elevation. Current range includes Santa Rita Mountains, and probably occurs south of Tucson into Cochise County (AGFD 2003m).
Large-flowered blue star	*Amsonia grandiflora*	SOC	N/A	N/A	Absent	Extremely unlikely to occur. Occurs in canyon bottoms and sides in oak woodlands, typically dominated by Emory oak and Mexican blue oak, at elevations between 3,685 and 4,500 feet (AGFD 2003n).
San Carlos wild-buckwheat	*Eriogonum capillare*	SOC, SR	N/A	N/A	Absent	Extremely unlikely to occur. In Arizona, occurs on sandy riverbed along ephemeral portion of San Carlos River and along sandy/gravelly washes and up lower slopes of neighboring hills. Generally in areas of sparse vegetation and few competing species; found near disturbed areas, roadsides, and road cuts. Plants also found in Globe near Pinal Creek, Dripping Springs Mountains, Aravaipa watershed, and near Mammoth (AGFD 2003o).
Bartram stonecrop	*Graptopetalum bartramii*	SOC, SR	N/A	N/A	Absent	Extremely unlikely to occur. Occurs in cracks in rocky outcrops in shrub live-oak-grassland communities along meandering arroyos on sides of rugged canyons, at elevations of 3,650 to 6,700 feet (AGFD 2001j).
Huachuca golden aster	*Heterotheca rutteri*	SOC	N/A	N/A	Absent	Extremely unlikely to occur. Occurs in level, open grassland at elevations from 3,560 to 6,500 feet. Grows on roadcuts and disturbed sites (AGFD 2001l). Listing Status: known only from eleven locations in U.S. and one location in Mexico (AGFD 2001k).
Lemon Lily	*Lilium parryi*	SOC, SR	N/A	N/A	Absent	Extremely unlikely to occur. Occurs in mesic, shady canyon bottoms along perennial streams or adjacent hillside springs (AGFD 2001l).
Wiggins milkweed vine	*Metastelma mexicanum*	SOC	N/A	N/A	Absent	Extremely unlikely to occur. Occurs on open slopes within open oak woodland on granitic soils. Known to occur in Pima County in Baboquivari, Coyote, and Catalina Mountains (AGFD 2000d).
Lemmon cloak fern	*Notholaena lemmonii*	SOC	N/A	N/A	Absent	Extremely unlikely to occur. Occurs in limestone cliff crevices and slopes/cliffs of igneous rocks. Known to occur in Pima County in Coyote, Rincon, and Santa Catalina Mountains (AGFD 2003p).
Beardless chinch weed	*Pectis imberbis*	SOC	N/A	N/A	Absent	Extremely unlikely to occur. This species has an extremely broad range; occurring in open grassland and oak/grassland between 3,000 and 6,500 feet. Adapted to disturbance; grows along road cuts. Known in the Huachucua, Santa Rita, Atascosa, and Patagonia Mountains, and Canelo Hills (AGFD 2003q).
Catalina beardtongue	*Penstemon discolor*	HS	N/A	N/A	Absent	Extremely unlikely to occur. Occurs in chaparral and pine-oak in rock outcrops and bedrock openings at elevations between 4,100 and 7,600 feet (Harris 2001).
Species Absent from Planning Areas or Occurring only as an Accidental within the Planning Areas and Unsuitable for Restoration						
Desert rosy boa	*Charina trivirgata gracia*	SOC	N/A	N/A	Absent	Extremely unlikely to occur. Occurs in rocky areas in desert ranges, especially in canyons with permanent or intermittent streams, on basalt or granitic soils (AGFD 2003r).
Mexican rosy boa	*Charina trivirgata trivirgata*	SOC	N/A	N/A	Absent	Extremely unlikely to occur. Occurs in rocky areas in desert mountains and hillsides, inhabiting granite rock outcroppings (AGFD 2003s).
Texas horned lizard	*Phrynosoma cornutum*	SOC	N/A	N/A	Absent	Extremely unlikely to occur. Occurs in Chihuahuan Desert and desert-grassland, on sandy to gravelly flat ground, with or without rocky cover, and usually with scattered desert and grassland shrubs or on mesquite-dominated flats (AGFD 2002h).
Cowles fringe-toed lizard	*Uma notata rufopunctata*	SOC, WSC	N/A	N/A	Absent	Extremely unlikely to occur. Occurs only in sparsely vegetated areas (consisting of creosote bush, burroweed, croton, mesquite, or other scrubby growth) in fine-textured, windblown sand dunes; flats; riverbanks and washes of very arid desert (AGFD 2003t).

[1]Status

E refers to species which are federally listed as endangered. **T** refers to species which are federally listed as threatened. **C** refers to species which are candidates to be federally listed as endangered or threatened. **PE** refers to species which have been petitioned to be listed as endangered. **SOC** refers to species which are of special concern to the U.S. Fish and Wildlife Service, but have no formal listing status. DL (date) indicates that a species was federally delisted and the year that the delisting occurred. **WSC** refers to the Wildlife of Special Concern status given by the Arizona Game and Fish Department. **HS** refers to the Highly Safeguarded status given by the Arizona Department of Agriculture under the Arizona Native Plant Law. SR refers to the Salvage Restricted status given by the Arizona Department of Agriculture under the Arizona Native Plant Law. **PVS** refers to species in Pima County's Priority Vulnerable Species List. **MHCP** refers to species considered potential conservation targets at the end of Phase 1 of the Town of Marana's habitat conservation planning process. **N/A** indicates that listing status is not applicable because the species does not occur within the planning area.

[2]Marana

Species	Scientific Name	Status[1]	Marana Status[2]	Planning Area[3]	Occurrence[4]	Notes on Occurrence/Listing Status

Listed means that a species is federally listed as endangered or threatened. **Likely** means that the Technical Biology Team for the Town of Marana habitat conseravtion planning process decided that the species was likely to become federally listed in the next 5 to 10 years. **Not Likely** means that the Technical Biology Team for the Town of Marana habitat conseravtion planning process decided that the species was not likely to become federally listed in the next 5 to 10 years. **Not Considered** means that the species was not considered in the Town of Marana habitat conservation planning process. **N/A** indicates that the species was not considered in the Town of Marana conservation planning process and the listing status is not applicable because the species does not occur within the City of Tucson planning area.

[3]Planning Area
AV refers to City of Tucson holdings in Avra Valley. **SL** refers to the Southlands planning area. **SCR** refers to that portion of the Santa Cruz River within City of Tucson that falls within the project boundary for one of three Army Corps of Engineers river restoration studies (Paseo de las Iglesias, El Rio Medio, Tres Rios del Norte).

[4]Occurrence
Present refers to species known to occur in the planning area. **Potential** refers to species with suitable habitat within the planning area. **Restoration potential** refers to species with the potential to recolonize or be actively restored to the planning area if restoration of the Santa Cruz River or the construction of artificial water features, i.e., recharge basins (referred to as **created wetlands**) occurs in or near the planning area. **Absent** refers to species which are not present in the planning area and do not have suitable habitat within the planning area. **Accidental** refers to species which may occur sporadically within the planning area, but for whom there is not suitable habitat for long-term occupation. These classifications were made based on reports by SWCA (2003a and 2003b) and input by K. Kingsley.

[5]Talus snails status
This conservation target includes 15 species of talus snails that are have been recorded as occurring within Pima County. Uncertainty with respect to the taxonomy of this genus led Pima County to consider all 15 species as a single target. One species (Soronella eremita) was proposed for listing as an endangered species, but has since been withdrawn from consideration as a result of a Conservation Agreement.

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Species	Scientific Name	Status[1]	Marana Status[2]	Planning Area[3]	Occurrence[4]	Notes on Occurrence/Listing Status

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